Chapter One

INTRODUCTION

BACKGROUND

Initial training of soldiers involves two distinct phases. The first phase, called Basic Combat Training (BCT), teaches the fundamental combat skills needed by all soldiers. Subjects include rifle marksmanship, drill and ceremonies, familiarization with chemical protective equipment and so forth. The second phase, called Advanced Individual Training (AIT), instructs soldiers in the skills specific to a particular military occupational specialty (MOS). Upon graduation from this second phase, a soldier receives an alphanumeric designator that describes both the nature and level of skill. For example, the designator 11B indicates infantry skills and 13B a cannon crewman. Numerical suffixes ranging from 10 through 50 indicate skill level. Thus, the designator 13B10 would denote an entry-level cannon crewman. The award of the designator or MOS indicates the soldier is qualified in that specific skill, by which is meant that he or she has mastered some fraction of the skills associated with that military job. Soldiers are expected to round out their skills with job experience.

MOS qualification (MOSQ) is important in that it serves as a surrogate for unit readiness. A soldier not qualified in an MOS cannot deploy on a combat mission. A unit with a large number of unqualified soldiers must either replace them with qualified soldiers before it deploys or take the time to train them until they are qualified. Either course of action has a significant effect on the deployability of that unit.
Evidence suggests that average MOS qualification rates for Army Reserve (USAR) and Army National Guard (ARNG) units is 70 to 80 percent of personnel in the unit. The number of personnel in units is frequently less than the total authorized strength of a unit. A unit that has only 70 percent of its personnel MOS qualified and additional positions unfilled would require either a significant number of replacements or training prior to deployment. Experience during Operation Desert Storm in mobilizing reserve units verified that replacements and fillers were required for almost all Army component units prior to mobilization. Generally, MOS qualification poses no special problem for active component units. They normally receive MOS qualified soldiers directly from the training establishment. Soldiers who are reassigned go to similar jobs in a different unit. The situation in the reserve components is quite different.

MOSQ becomes a problem for the reserve components partly because of the nature of the personnel acquisition process. The reserves recruit a substantial number of their newcomers from those leaving the active component. These recruits, called prior-service (PS) personnel, offer some advantages in that they have the basic combat training and are qualified in an MOS. But that specific skill may or may not be one needed in the unit. If not, the unit must qualify the individual in the MOS of assignment, and that training may take a long time. Those who have never been in the military, called nonprior-service (NPS) personnel, receive both their BCT and AIT at centralized training facilities run either by the active or reserve components, but the process may take many months. In the meantime, the soldier appears on the unit rolls as not qualified in an MOS. Both PS and NPS soldiers can lower the level of MOS qualification in a unit.

Voluntary change in reassignments can exacerbate the problem. Soldiers may change units because they have relocated geographically because of civilian job changes or simple preference, and this relocation entails a change in units. Soldiers can also voluntarily change units in a local area because they can find better promotion or work opportunities in a different unit. In either case, there is no guarantee that the soldier will occupy a position requiring the same MOS as the previous unit, and the gaining unit must train the soldier in a new MOS. Again, until trained the soldier is not MOS qualified.
but counts against the unit strength. Depending on the MOS, retraining can take a long time.

PURPOSE

Although there are hypotheses about the general causes of low MOS qualification, we do not understand the degree to which each contributes to the problem. Also, it is not clear whether certain MOSs or certain types of units experience higher levels of unqualified personnel. This report explores the causes of low skill qualification levels and whether certain skills or certain units are more difficult to maintain at the required levels.

APPROACH AND SCOPE

The general approach taken to answer these questions involves creation of a database, sampling that database, and analyzing the sample with a statistical model to determine:

• What differences occur in MOSQ in specialties and units and what accounts for these differences,
• How often individuals change units or MOS and the likely driving factors behind these changes,
• How individuals changing jobs differ from those who do not, and
• How long it takes to retrain various skills.

The Database and Sample

We drew our data from three sources: the 1986 Reserve Components Surveys (Defense Manpower Data Center, 1987) augmented with information from the Defense Manpower Data Center’s (DMDC’s) Reserve Components Common Personnel Data System (RCCPDS) and the Army’s Personnel Structure and Composition System (PERSACS). The merged database provides a comprehensive framework for the tracking of individual reserve skill training and turnover during FY86 and FY87. Our research concentrates on selected reservists in the Army National Guard and the Army Reserve. Our
sample is based on the 10 percent sample of enlisted reservists in these components selected for the 1986 Reserve Components Surveys.

One aspect of the sample important for our analysis is that the survey excluded individuals attending initial active-duty training (IADT)—usually E1 or E2 personnel. Those few remaining reservists at pay grades E1 and E2 were likely to be atypical, so we restricted our analysis sample to those reservists in pay grades E3 through E9.

The initial survey provided a wealth of information not commonly available on reserve personnel files. It collected detailed individual information in seven areas: military background; military plans; military training, benefits, and programs; individual and family characteristics; civilian work; family resources; and military life. The most relevant survey information for our training analysis concerns training history and mode, civilian job characteristics, and historical information on reserve service and unit changes. Attitudinal information was also available about training, proposals for extended training time, and other aspects of reserve service. The survey records were matched with corresponding RCCPDS records to obtain information on individual unit affiliation, home and unit location, pay grade, and duty and primary occupational specialties.

Job assignments are indicated by the duty MOS (DMOS) designator on the RCCPDS tapes. The primary MOS (PMOS) indicates the primary skill in which the individual has successfully completed training. Our analysis defines a soldier as duty qualified when the PMOS and DMOS match at three character levels. Duty qualification indicates whether the soldier is assigned to a job in the primary area of training. As such, duty qualification measures how well matched assignments are relative to training and indicates whether a soldier can deploy with the unit.¹

Earlier research (Grissmer, Buddin, and Kirby, 1989) suggested that high levels of job and unit reassignment affected skill qualification levels. The qualification rates for prior-service personnel in the FY86

¹Note that the three-character match ensures training and at least minimal qualification in the correct MOS, but not necessarily at the right skill level. Thus, our analysis does not reflect the extent to which members are assigned to jobs in their MOS for which they are over- or underqualified.
survey sample did not rise rapidly with years of reserve service, which suggested that some soldiers might not remain continuously assigned in the same specialty. The qualification rates for NPS personnel actually fell with years of service (YOS), indicating possible job and unit changes for them also. The actual job assignment pattern was not available in the FY86 database, so we further augmented our database with information from the RCCPDS quarterly record for October 1987. The RCCPDS update allowed us to track changes in job assignment, unit assignment, and home location and to relate these changes to the likelihood of subsequent FY87 skill qualification.

The final set of analysis variables added to our database is unit information from the PERSACS database and aggregated unit-level data from the RCCPDS. The unit-level information is matched back with the individual soldier records from the survey. The PERSACS data provided information on mobilization priority, equipment modernization status, unit reorganizations (terminations, openings, and major requirements changes), unit type (combat, combat support, and combat service support), unit branch (infantry, armor, signal, engineering, etc.), and unit skill and grade authorizations. With the exception of the unit authorizations information, other unit characteristics were derived from the PERSACS 13-character standard requirements code (SRC) that identified the unit’s Table of Organization and Equipment (TOE). Mobilization priority is based on the authorized level of organization (ALO). Unit type was constructed by grouping unit branch categories into the appropriate combat, combat support, and combat service support areas. Equipment modernization status is based on the TOE series of the unit equipment and the effective date for the TOE structure change. Unit size, location, and attrition information were constructed from the RCCPDS database for the units corresponding to the soldiers in the survey sample.

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2The Department of the Army Master Priority List (DAMPL) provides a more accurate and complete characterization of the unit’s mobilization priority than ALO, but ALO corresponds in general with DAMPL and has the advantage of being unclassified.
The Statistical Model

Multivariate models are used to analyze the patterns of skill qualification and personnel turnover. A three-equation recursive logit structure (Maddala, 1983; Lee, 1981; Schmidt and Strauss, 1975) is used to examine how various individual and unit characteristics affect qualification and skill reassignment. The appendix contains a more detailed discussion of the model’s operation. The data allow us to determine changes in primary and duty MOS as well as unit changes and geographical migration for each reservist in the file. We can also estimate MOS qualification levels for different types of individuals and units at two points in time (June 1986 and October 1987) and determine duty reassignments during that 15-month period. We use three types of equations to explain:

• What accounts for differences in MOS qualification levels across types of individuals and units in June 1986?

• What is different about individuals changing and not changing duty MOS in the 15-month period?

• How long does retraining take across different skills?

The first equation is a snapshot of what factors affect qualification at one point in time (June 1986). This equation identifies what types of individuals are likely to be qualified or what unit characteristics are associated with high levels of individual skill qualification. The second equation examines DMOS changes between June 1986 and October 1987. The results show whether some types of individual or units are more prone to job changes and whether qualified people are more or less likely to change. The final equation examines individual qualification status (October 1987) as a function of recent assignment and job qualification as well as individual and unit characteristics. The focus of this analysis is on identifying factors that affect the requalification of individuals changing DMOS between the two periods and the qualification status of individuals who remain in their initial unit.
REPORT ORGANIZATION

The next five sections of the report are organized as follows. Chapter Two examines patterns of job training and qualification at the time of the survey in June 1986. Chapter Three describes factors associated with changing DMOS or units for the survey cohort between the time of the survey and September 1987. Chapter Four analyzes the retraining or requalification behavior of reservists changing DMOS during this 15-month interval. This chapter also examines what factors enhance the likelihood that reservists who were unqualified in their FY86 skill and did not change jobs will become qualified by September 1987. Chapters Two through Four also describe the results from the recursive logit model. In each chapter, initial description and discussion are based on simple tabulations and are followed by a detailed examination of the regression results. Summary tables in each chapter show the derivatives of the probability function for continuous variables and unit changes for indicator variables, that is, the rates of change in the estimated probabilities with changes in individual and unit characteristics. Chapter Five uses the retraining information from Chapter Four and develops estimates of skill retraining times. The final chapter provides conclusions and policy recommendations. An appendix contains a detailed discussion of the statistical model, variable definitions, and logistic regression coefficients.